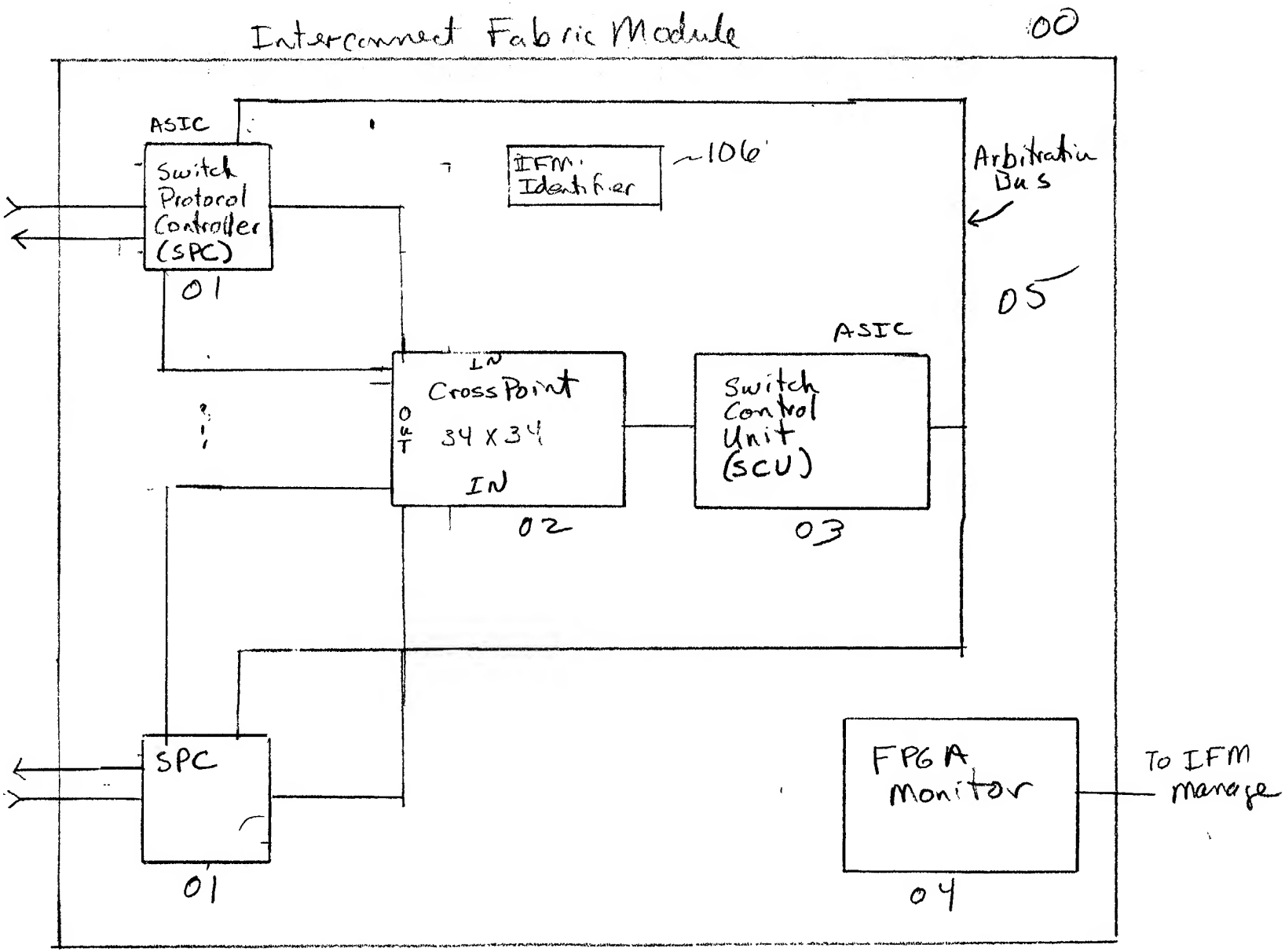

Interconnect Fabric Module
00
ASIC
Switch Protocol Controller (SPC)
01
IFM Identifier
106
Arbitration Bus
05
ASIC
IN
CrossPoint
OUT
34 X 34
IN
02
Switch Control Unit (SCU)
03
SPC
01
FPGA Monitor
04
To IFM manage

Fig 1

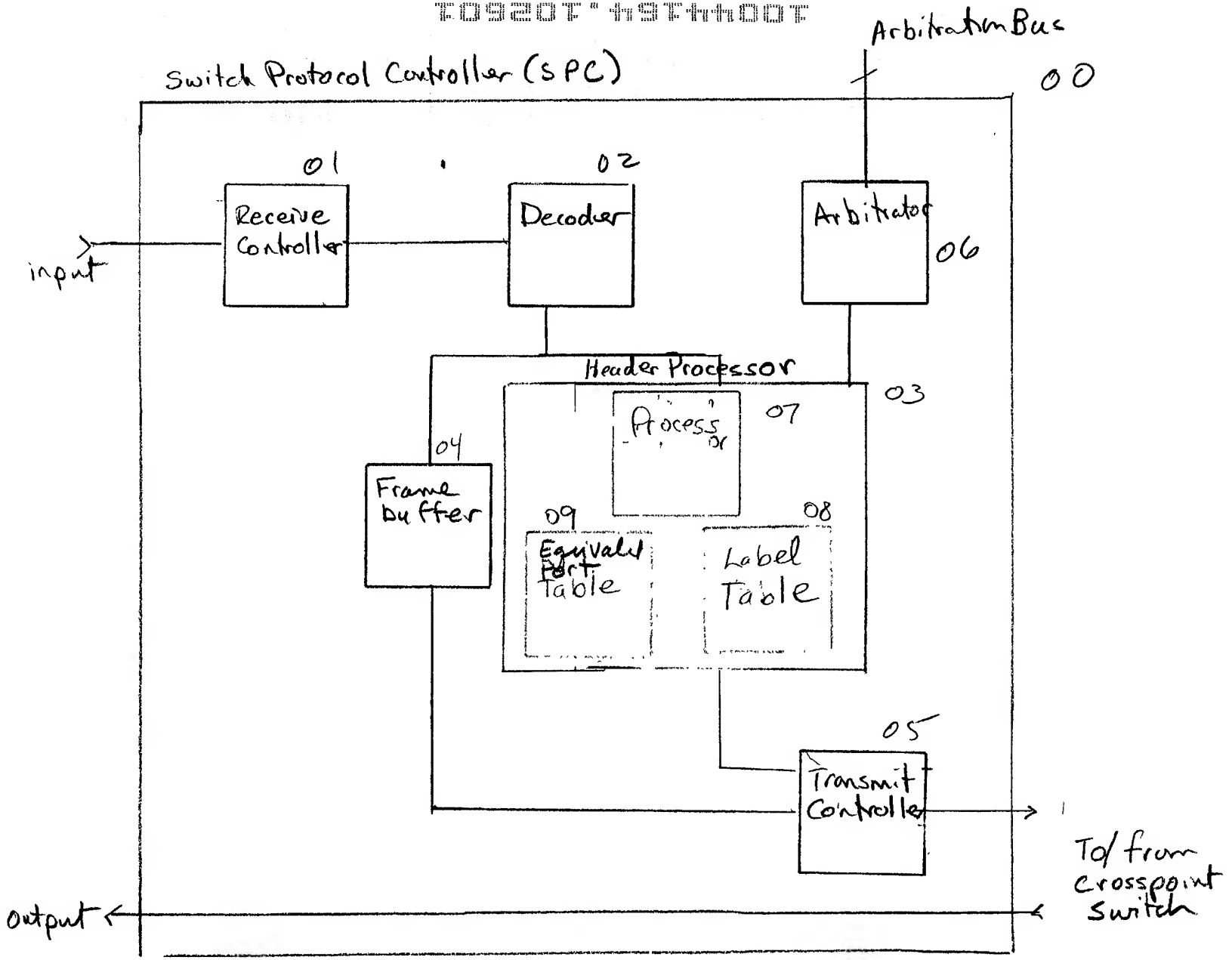

Arbitration Bus
Switch Protocol Controller (SPC)
00
01
02
Receive Controller
Decoder
Arbitrator
06
input
Header Processor
03
Processor
07
04
Frame buffer
09
08
Equivalent Port Table
Label Table
05
Transmit Controller
To/from crosspoint switch
output

Fig 2

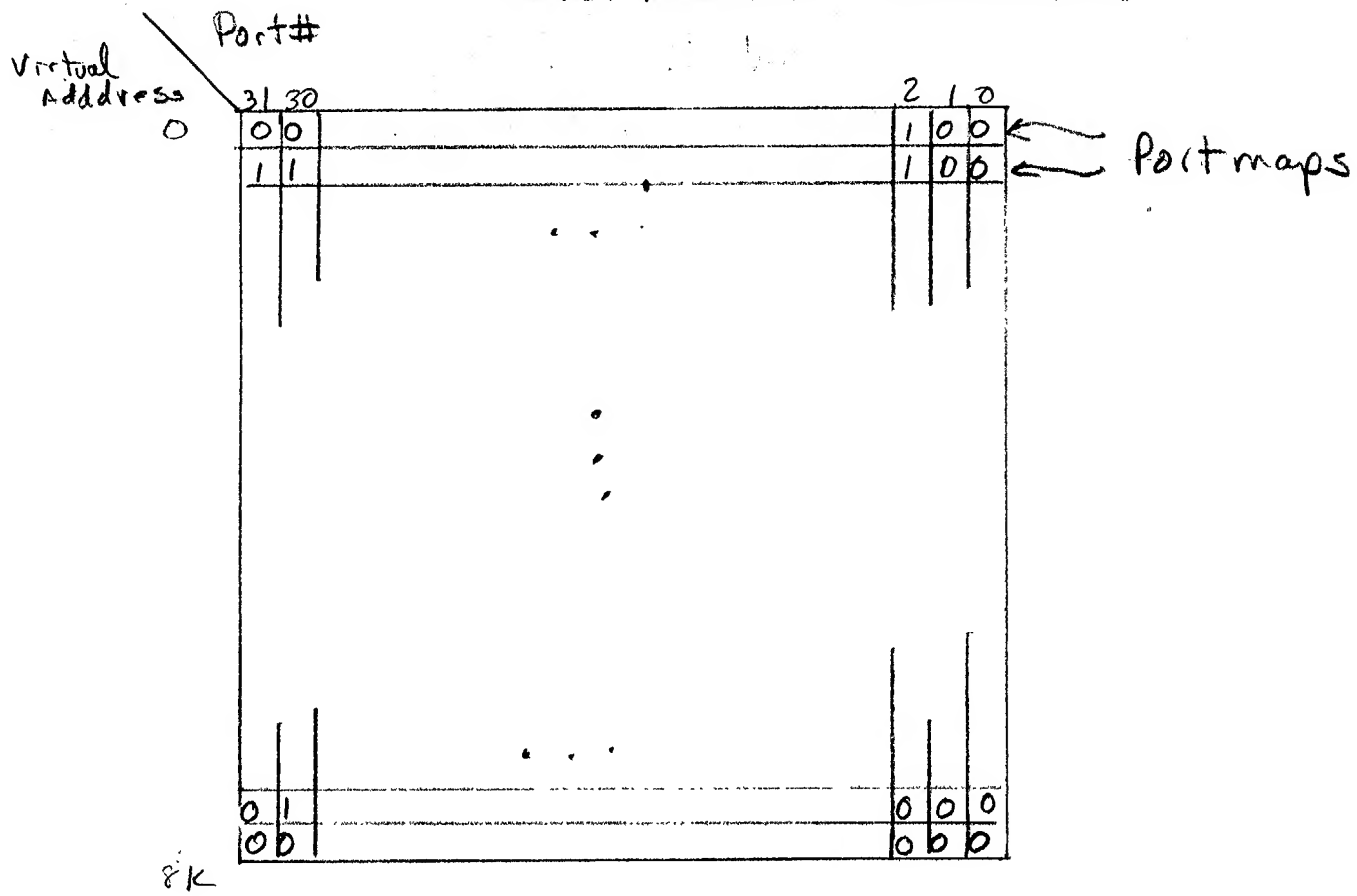

Label Table
Port#
Virtual address
31 30
2 1 0
0 0
1 1
1 0 0
1 0 0
Portmaps
0 1
0 0
0 0 0
0 0 0
8K

Fig 3

TO920T "19FthOT

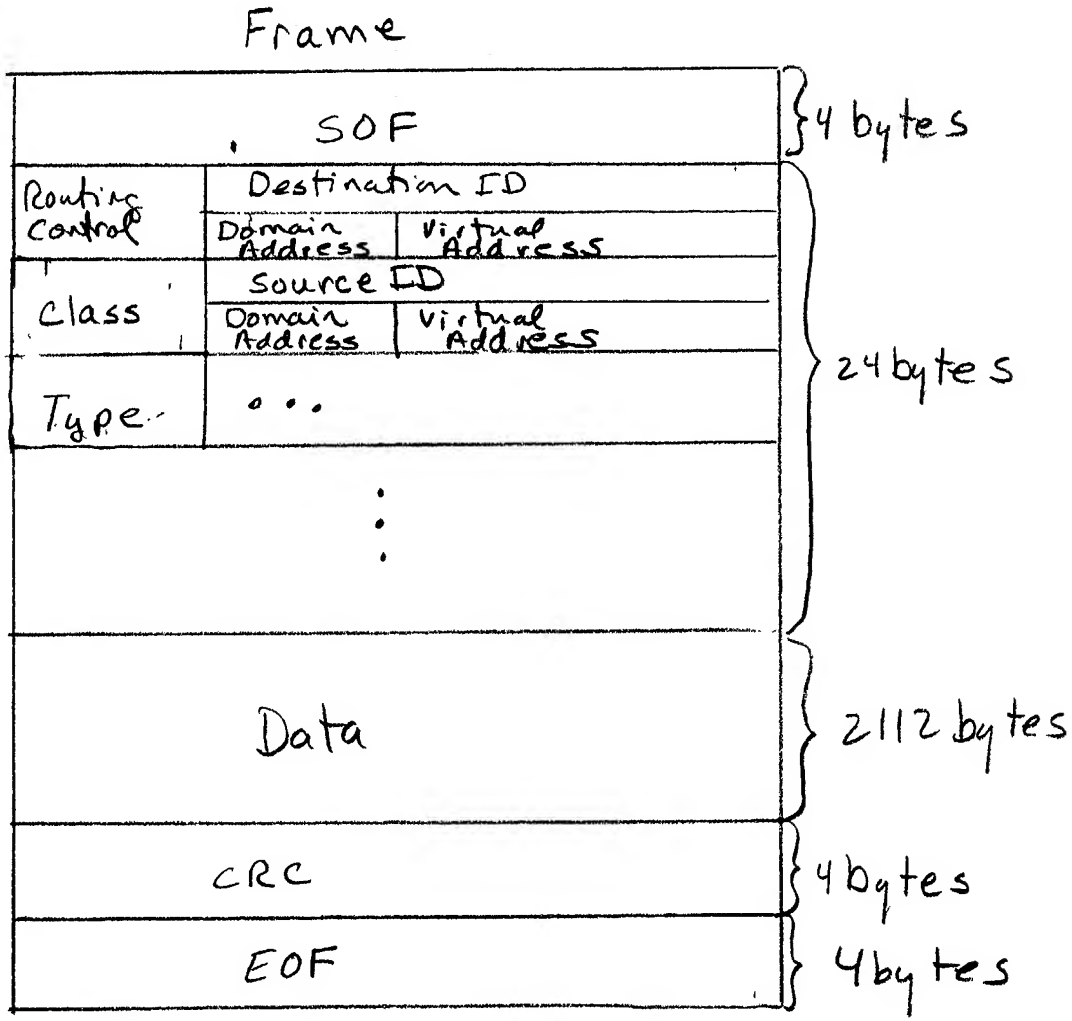


Fig 4

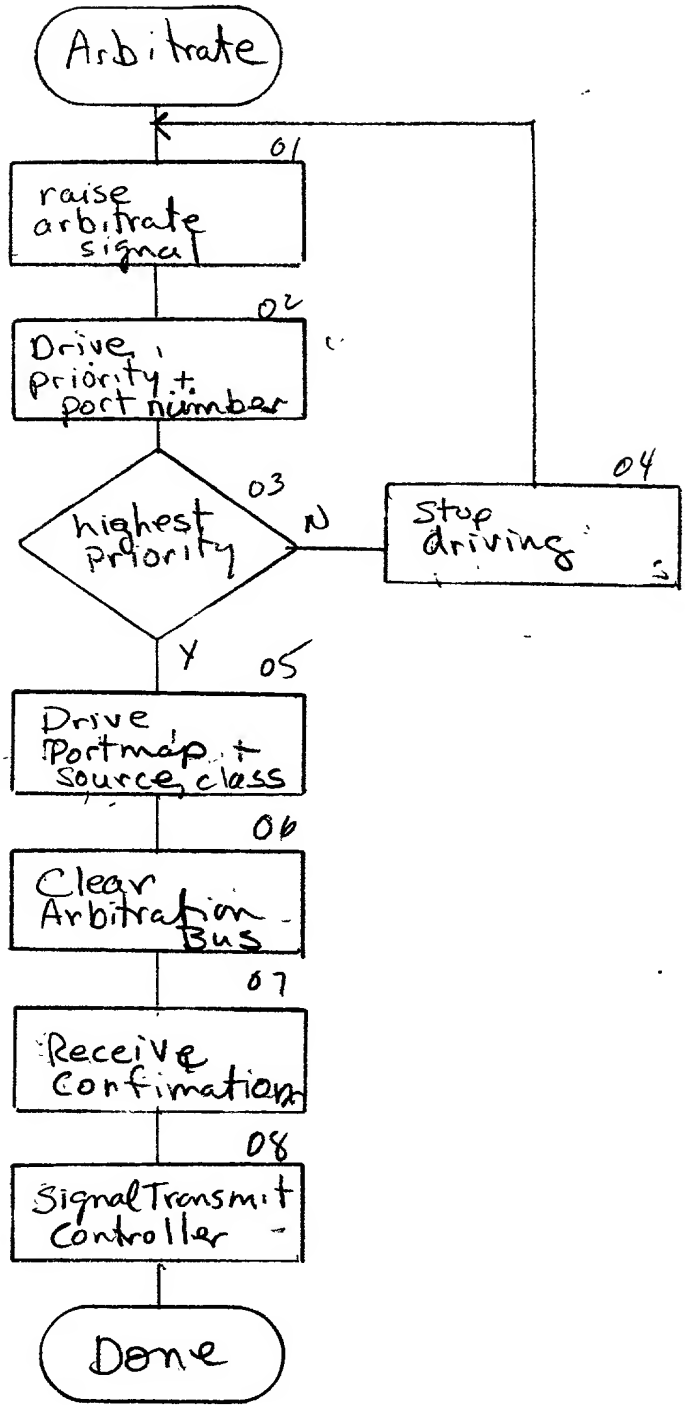

Arbitrate
01
raise arbitrate signal
02
Drive priority + port number
03
highest priority
N
04
Stop driving
Y
05
Drive Portmap + Source class
06
Clear Arbitration Bus
07
Receive Confimation
08
Signal Transmit Controller
Done

Fig 5

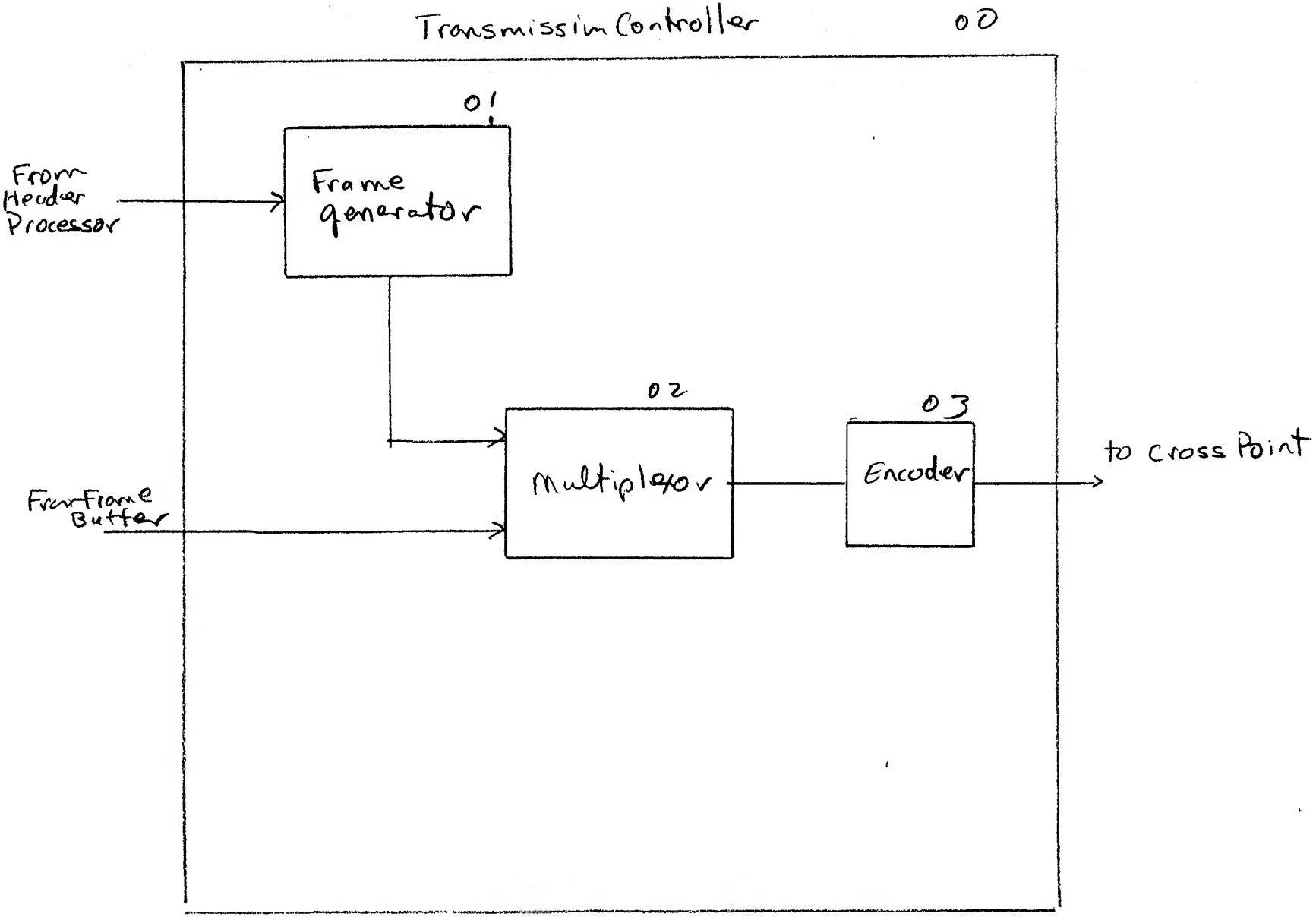

Transmission Controller
00
01
Frame generator
From Header Processor
02
Multiplexor
03
Encoder
to cross Point
From Frame Buffer

Fig 6

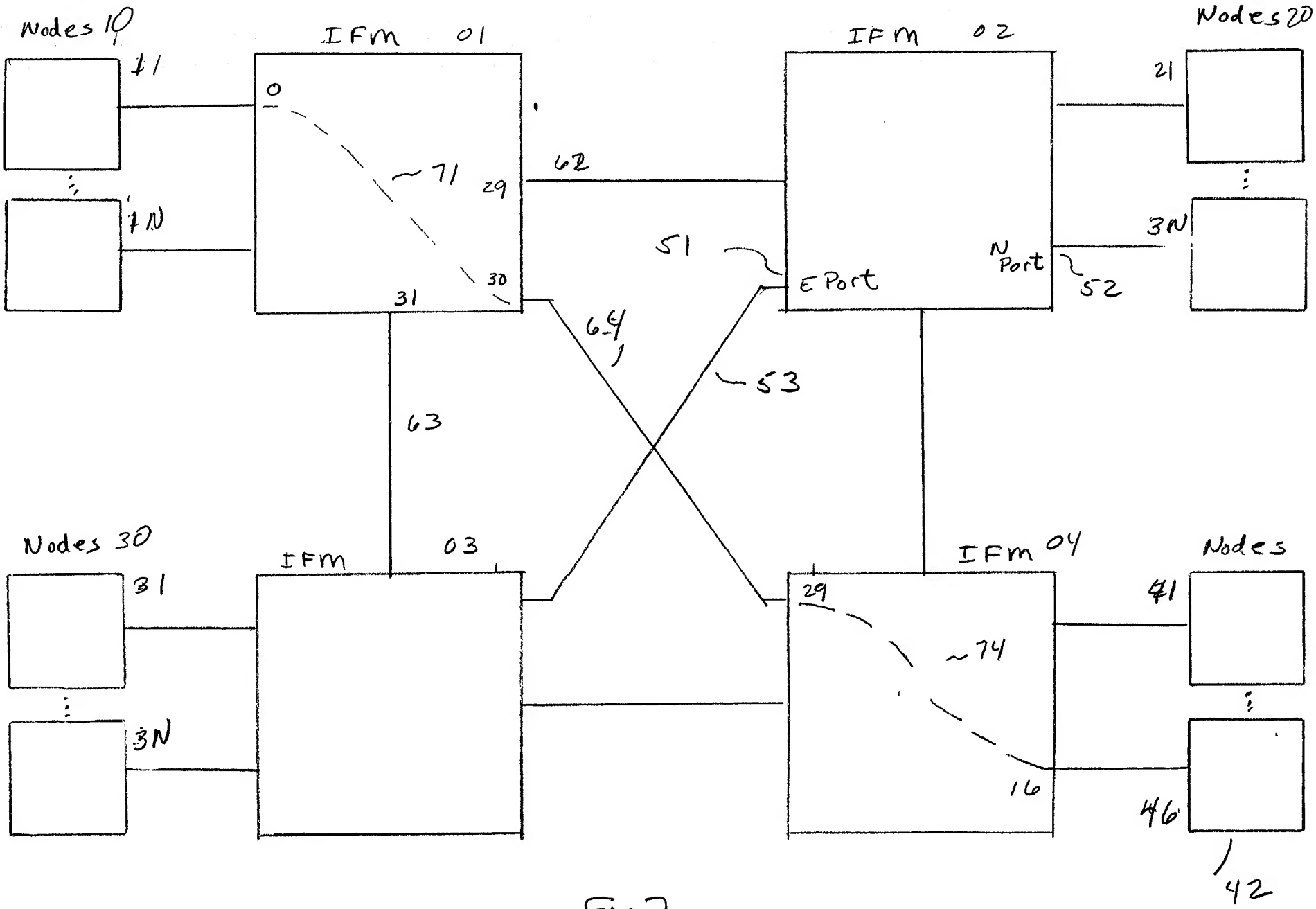

Nodes 10
IFM 01
IFM 02
Nodes 20
11
1N
0
71
29
62
21
3N
51
N Port
E Port
52
31
30
64
53
63
Nodes 30
IFM 03
IFM 04
Nodes
31
29
41
74
3N
16
46
42

Fig 7

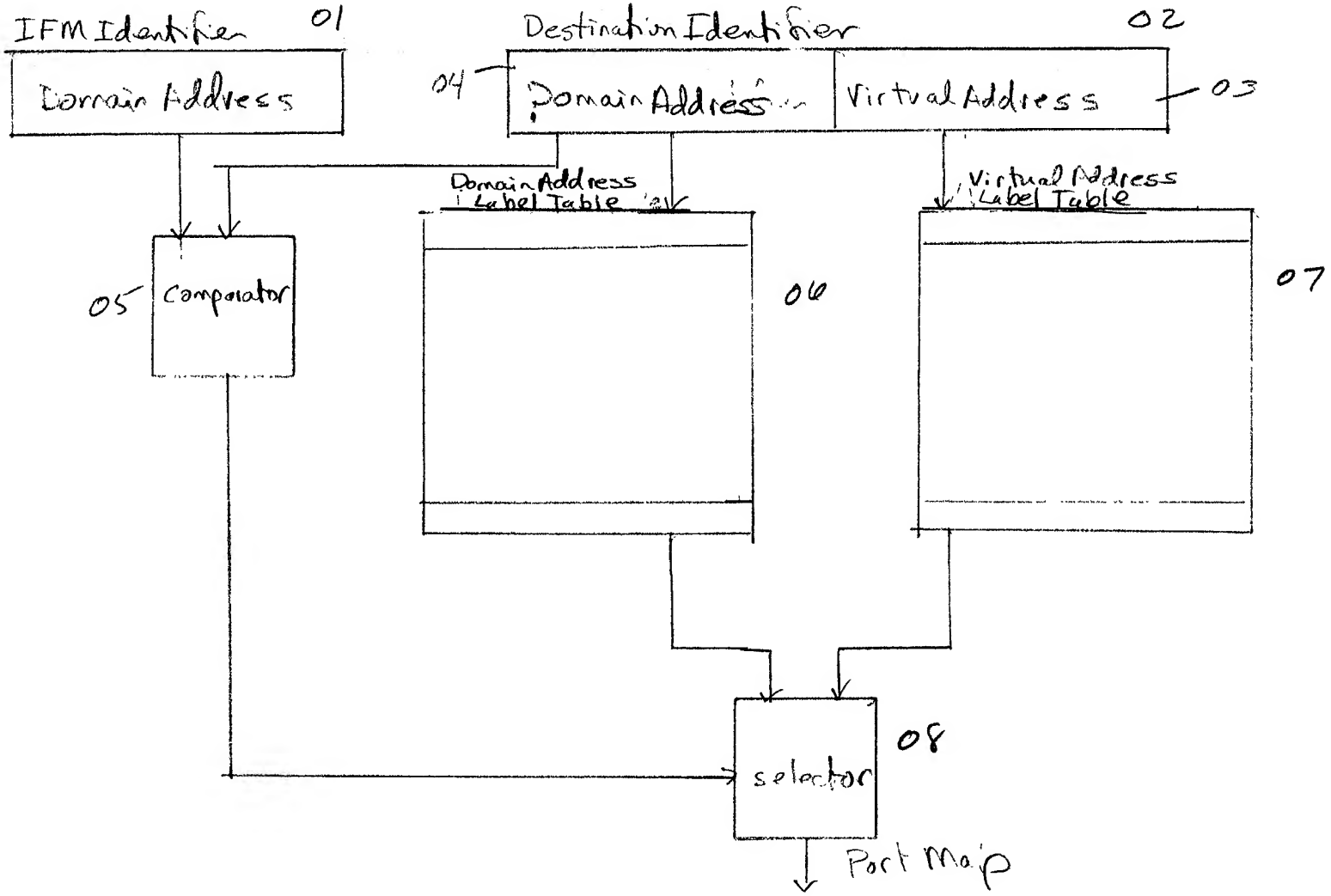

IFM Identifier
01
Domain Address
Destination Identifier
02
04
Domain Address
Virtual Address
03
Domain Address Label Table
Virtual Address Label Table
05
Comparator
06
07
08
selector
Port Map

Fig. 8

T09207"49Tnn001

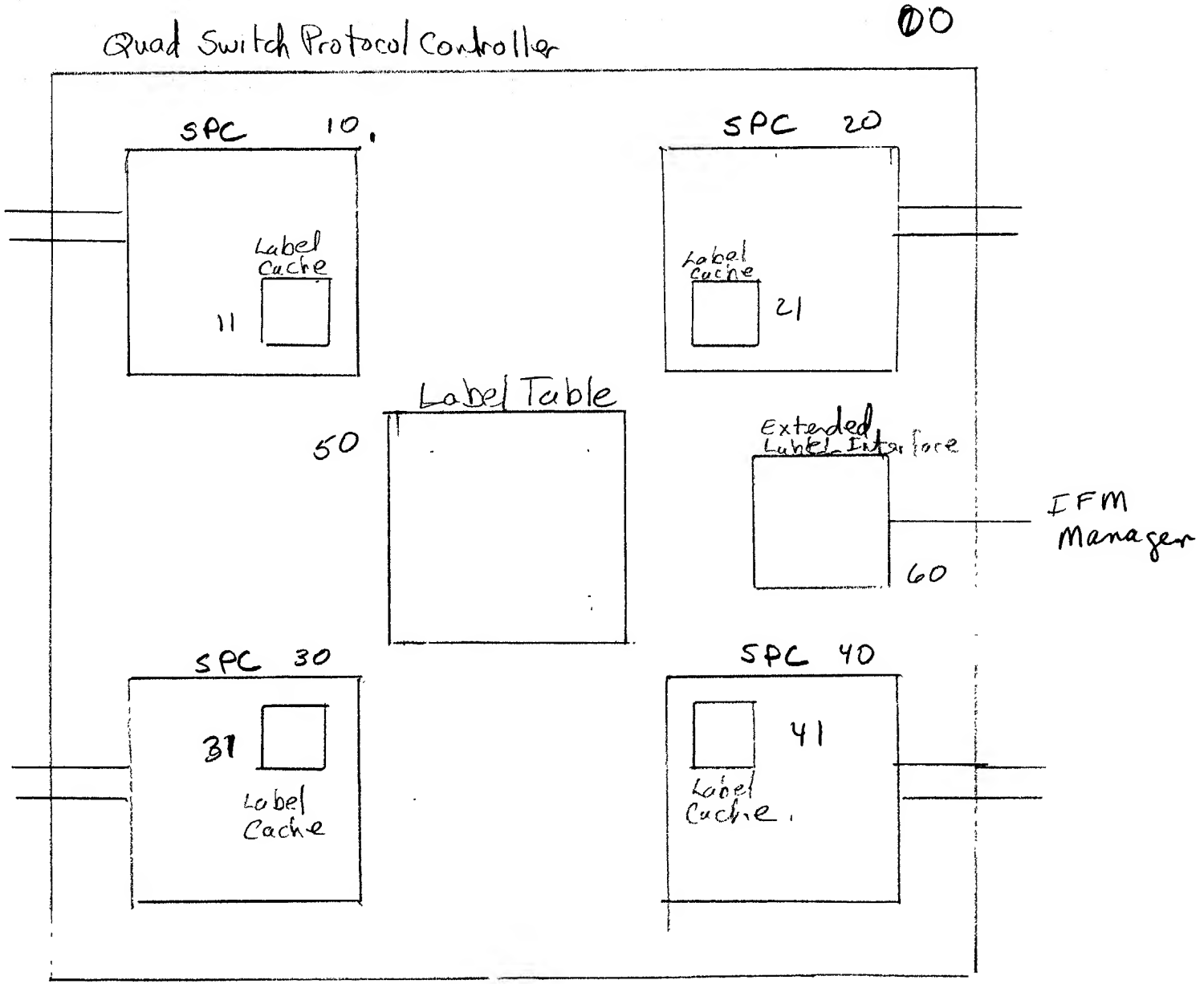


Fig 9

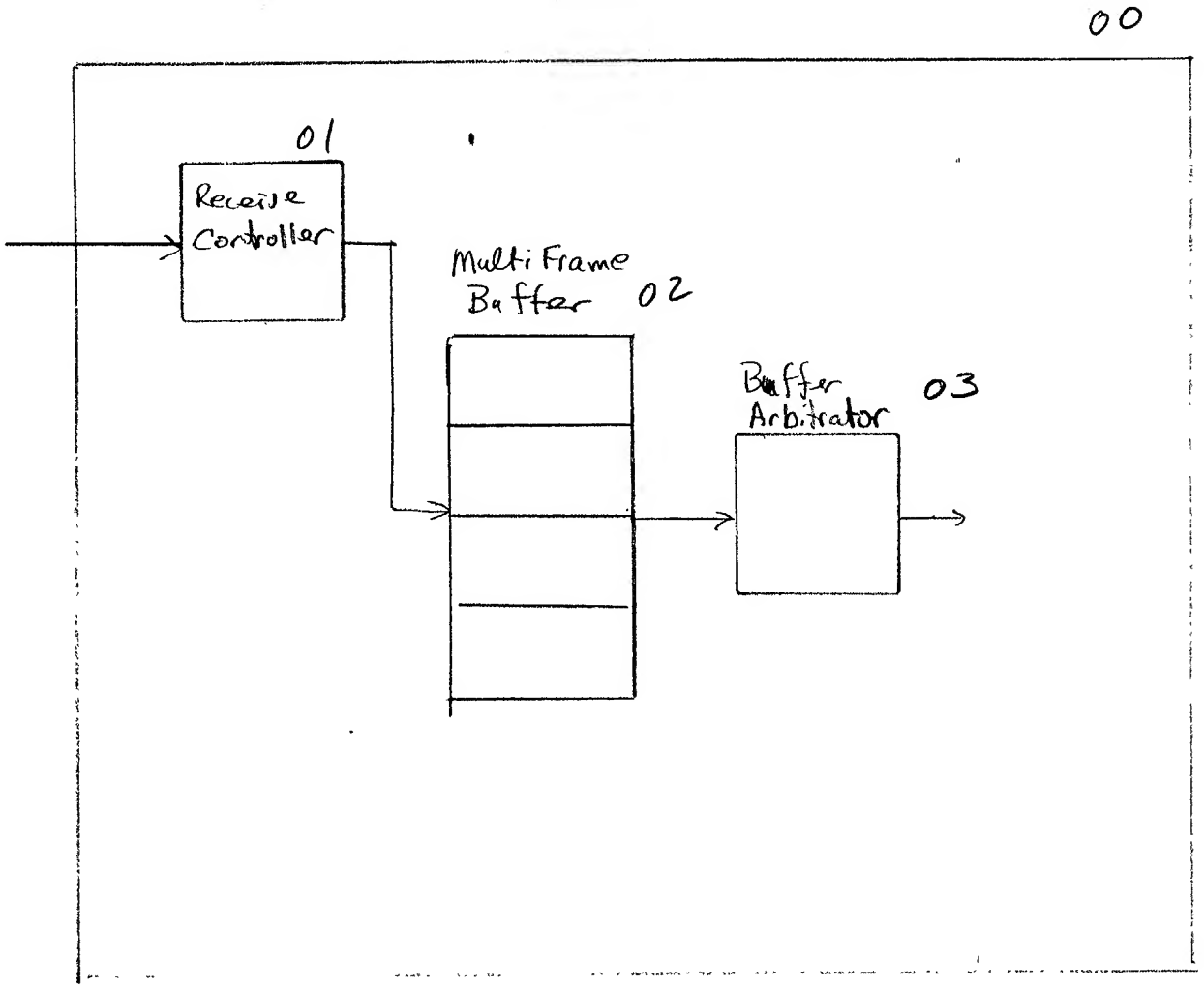

00
01
Receive Controller
Multi Frame Buffer
02
Buffer Arbitrator
03

Fig 10

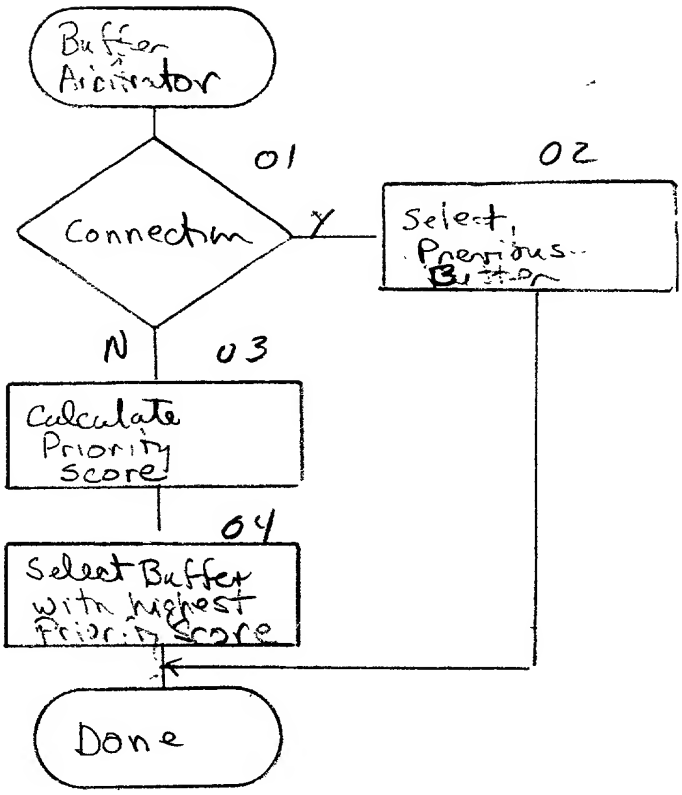


Fig 11

4004454 - 4004504

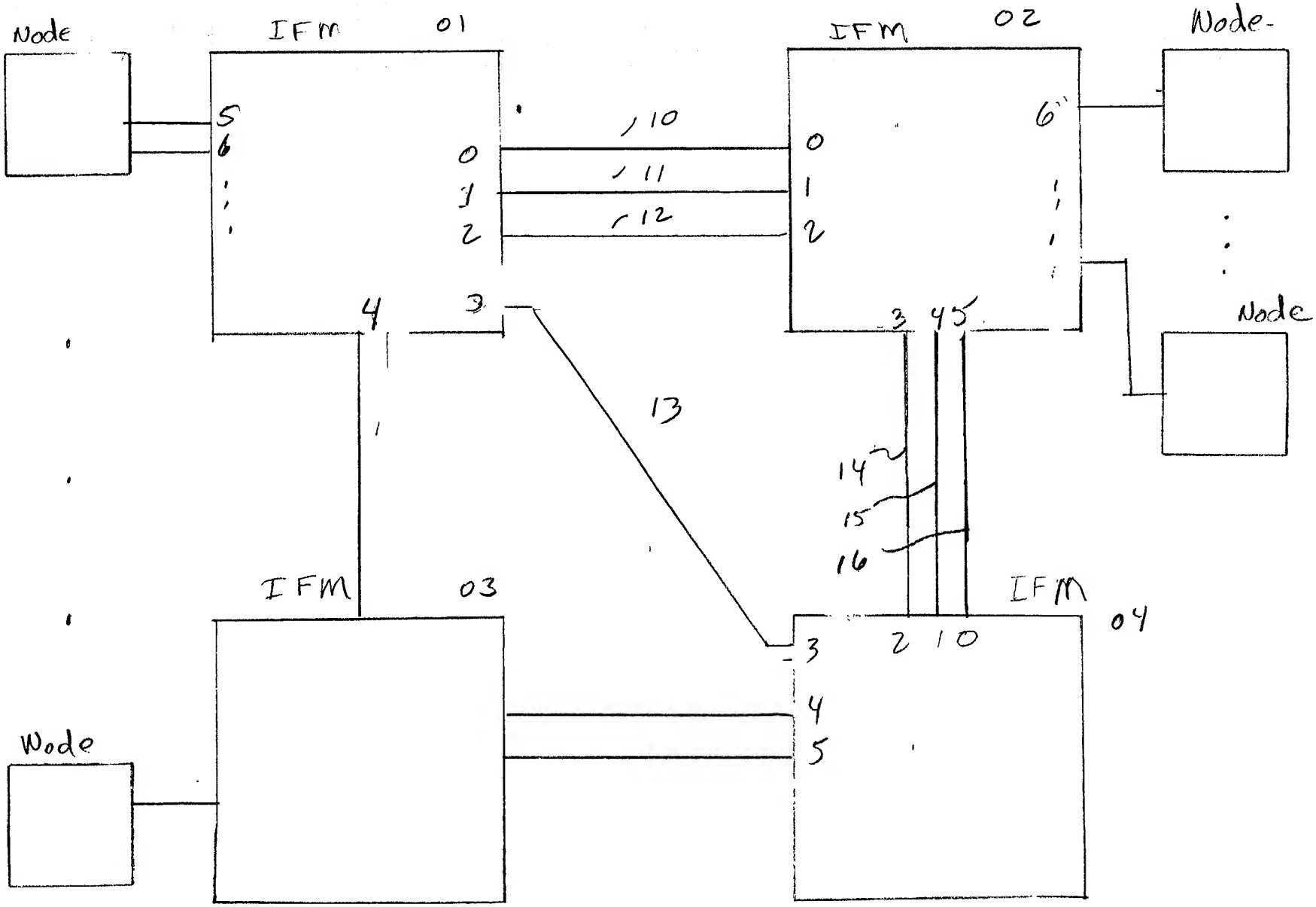

Node
IFM 01
IFM 02
Node
5
6
0
1
2
10
11
12
0
1
2
6
4
3
3
4
5
13
14
15
16
Node
IFM 03
IFM 04
Node
3
4
5
2
1
0

Fig 12

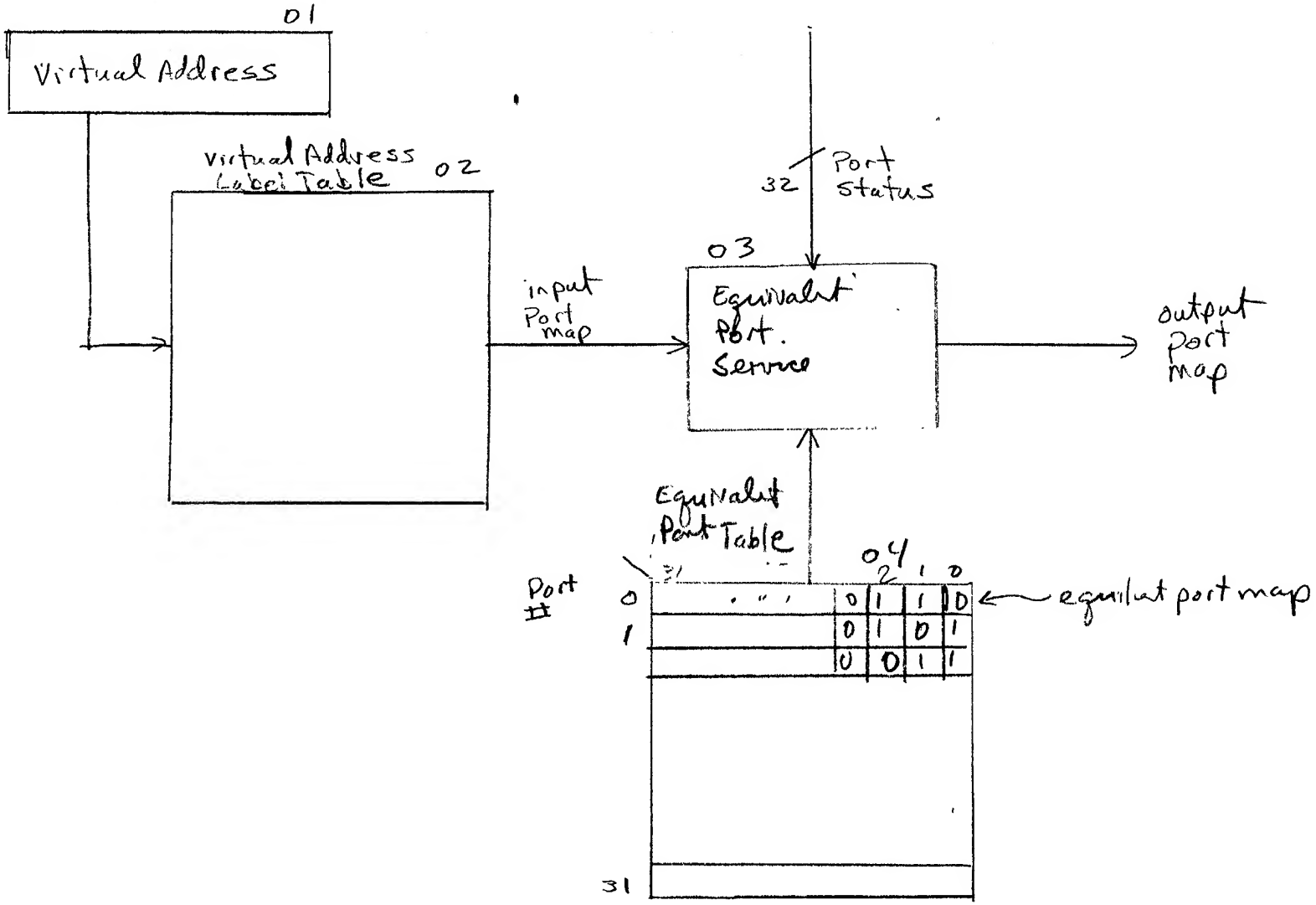

01
Virtual Address
Virtual Address Label Table
02
32
Port status
03
input Port map
Equivalent Port Service
output Port map
Equivalent Port Table
04
31
2
1
0
Port #
0
1
31
equivalent port map

Fig 13

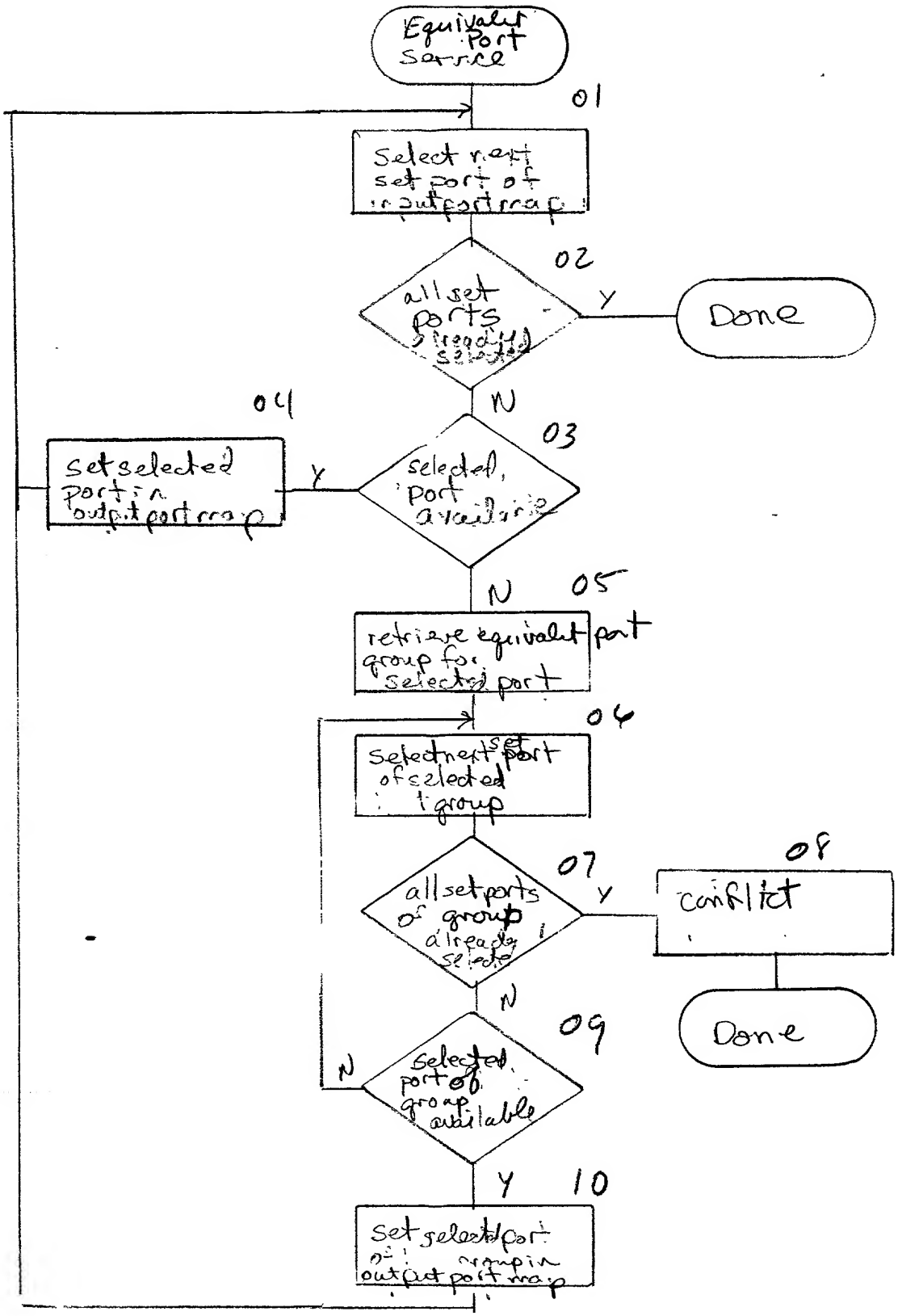

Equivalut port service
01
Select next set port of input port map
02
all set ports already selected
Y
Done
N
03
selected port available
04
set selected port in output port map
Y
N
05
retrieve equivalut port group for selected port
06
Select next set port of selected group
07
all set ports of group already selected
Y
08
conflict
Done
N
09
Selected port of group available
N
Y
10
Set selected port of group in output port map

Fig 14

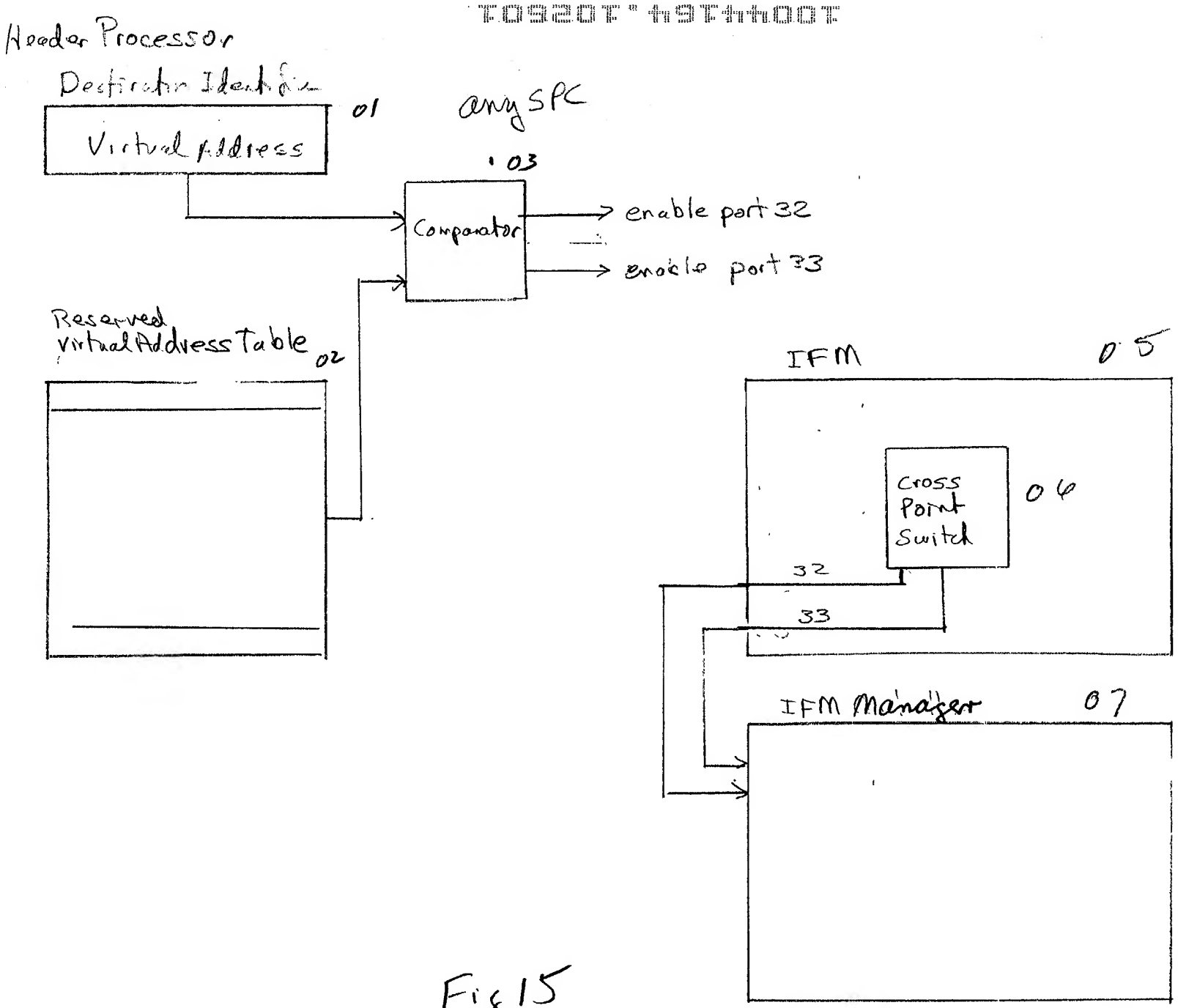
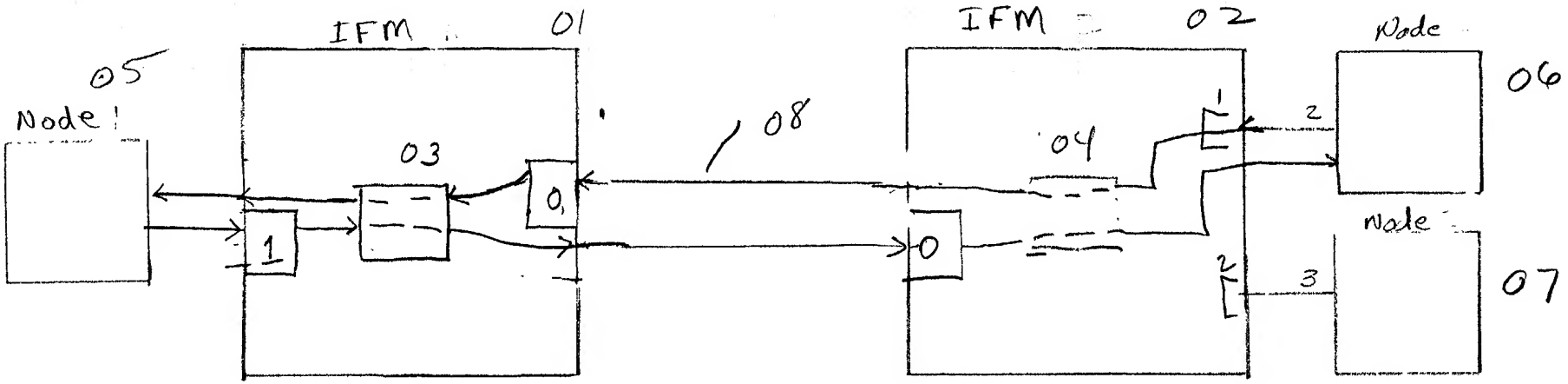

Header Processor
Destination Identifier
Virtual Address
01
any SPC
03
Comparator
enable port 32
enable port 33
Reserved virtual Address Table
02
IFM
05
Cross Point Switch
06
32
33
IFM Manager
07

Fig 15



Deadlock

10

Time	Node 1605 IFM 1601	Node 1606 IFM 1602
0	Send start connect 1, 2	Send start connect
1	Connect 1 ↔ 0	Connect 2 ↔ 0
2	Forward start connect	Forward start connect
3	Can't forward start connect Node 1	Can't forward start connect

Fig 16

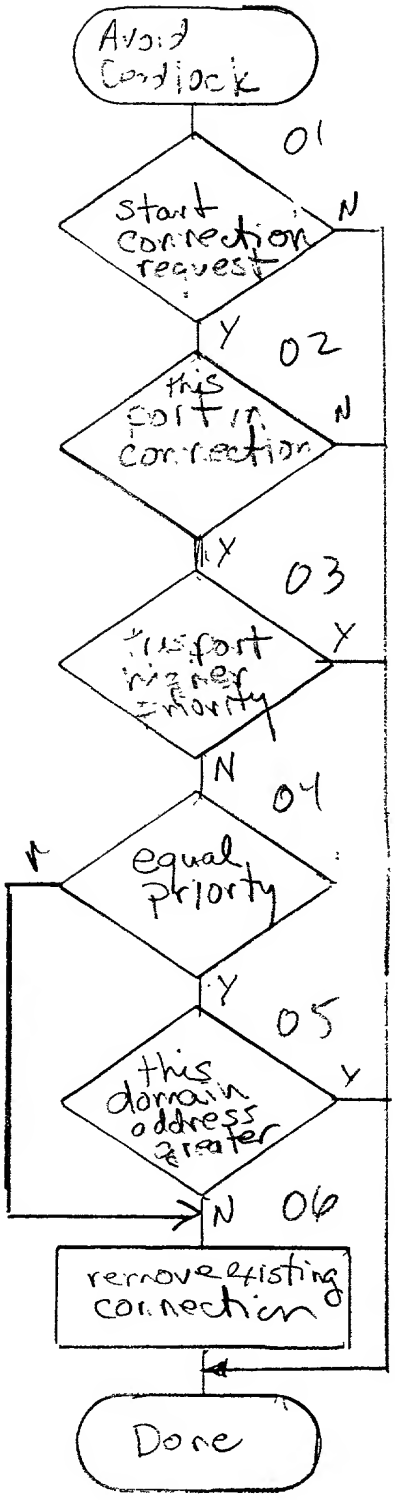


Fig 17

EP 0 454 464 A2

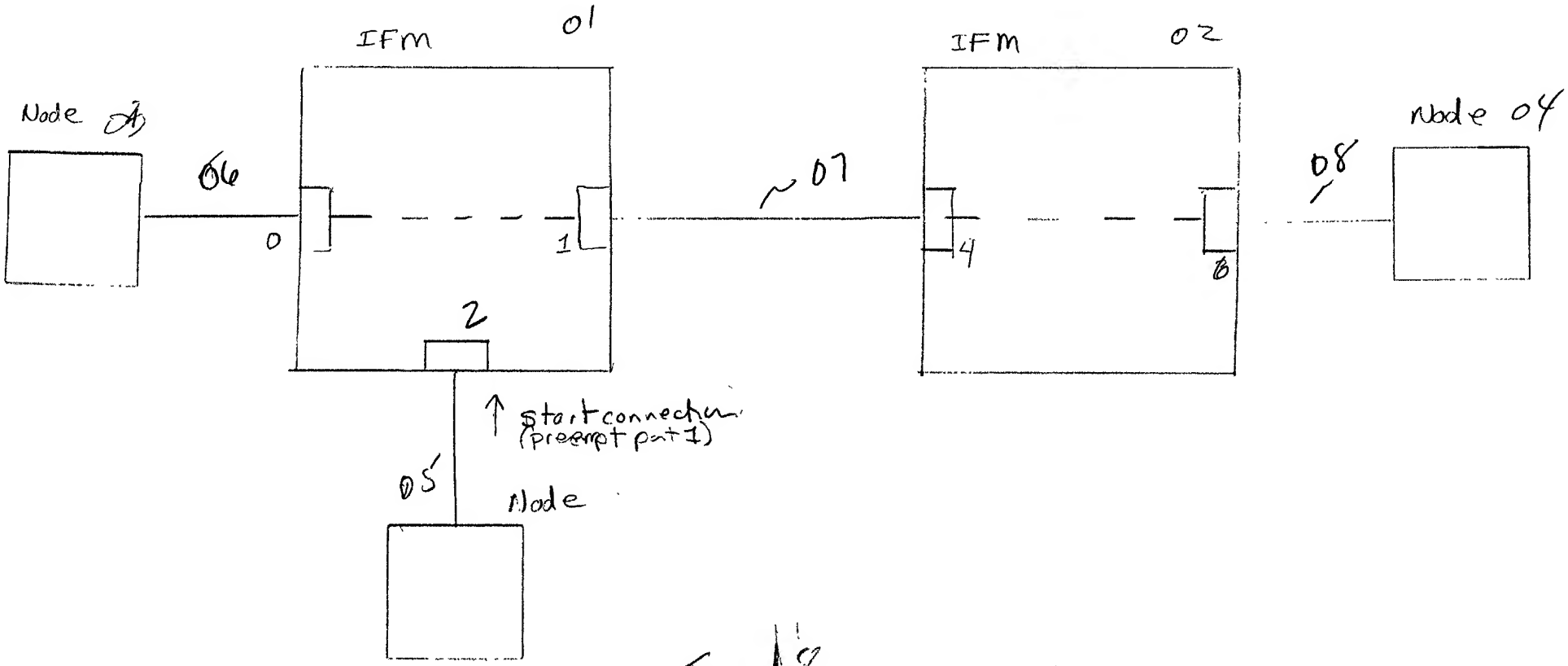
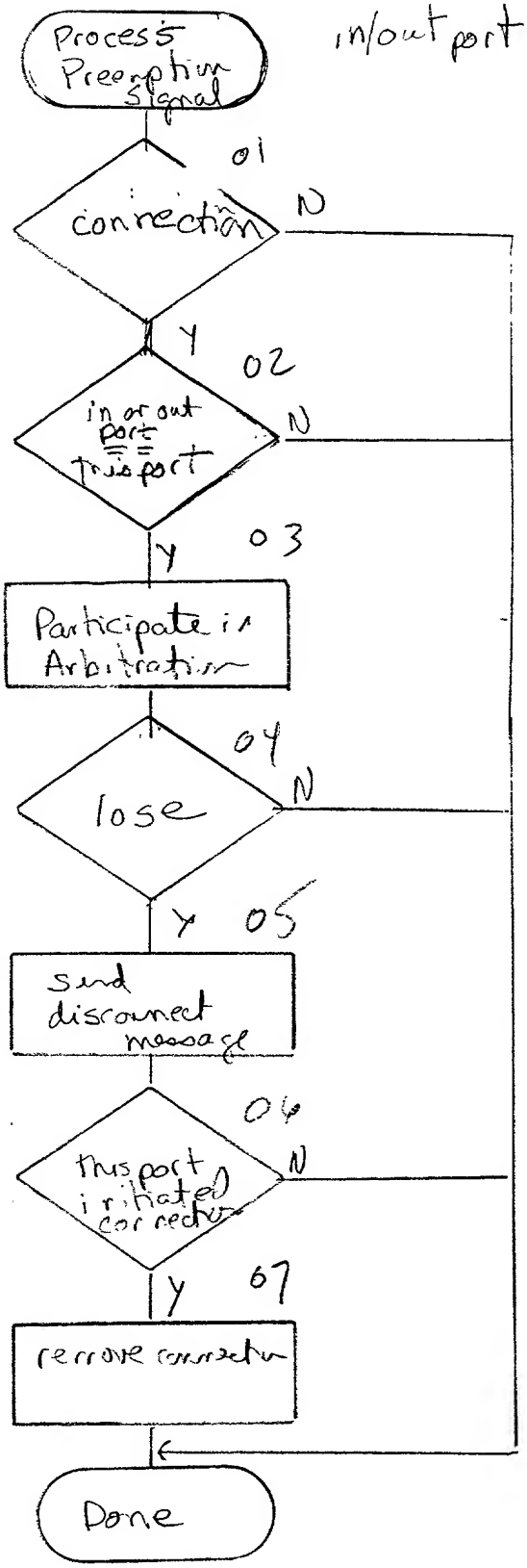

IFM
01
IFM
02
Node A
06
0
1
07
4
6
08
Node 04
2
start connection
(preempt part 1)
05
Node

Fig 18


Process Preemption Signal
in/out port
01
connection
N
Y
02
in or out port = trio port
N
Y
03
Participate in Arbitration
04
lose
N
Y
05
send disconnect message
06
this port initiated connection
N
Y
07
remove connection
Done

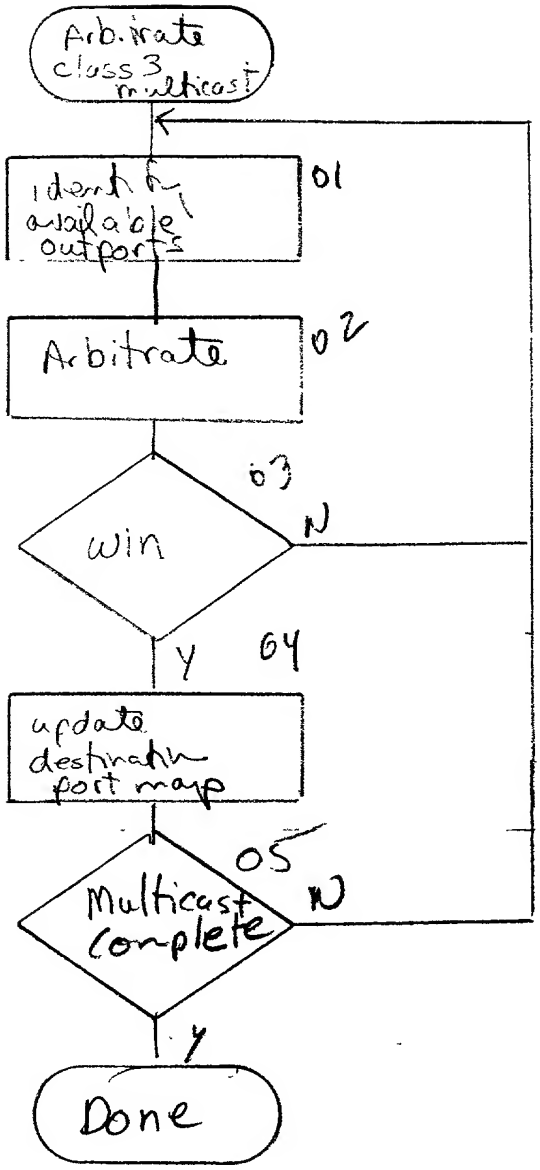

Arb. rate class 3 multicast
Identify available outports
01
Arbitrate
02
win
03
N
Y
04
update destination port map
Multicast complete
05
N
Y
Done

Figure 20